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DIRECTOR OF CENTRAL INTELLIGENCE
Technology Transfer Intelligence Committee

TTIC-C-014
12 March 1986

MEMORANDUM FOR: Members, Technology Transfer Intelligence Committee
Members, Committee on Export Control
Members, Committee on Exchanges

FROM:


Executive Secretary

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SUBJECT: Technology Transfer Conference Results

Attached for your information is the executive summary of a conference on technology transfer which was held in Boston last November. A copy of the conference proceedings are available in the TTIC Secretariat for those interested in additional details.

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EXECUTIVE SUMMARY

The "National Security Implications of Technology Transfer" conference was held at the Westin Hotel in Boston, Massachusetts, 6-8 November 1985. The conference focused on three themes: International Trade and Business; U.S.-Soviet Relations and Regional Security; and Science and Technology. Academic, industrial, and government experts in technology transfer analysis and control participated in the conference. The texts of the opening addresses, three keynote and two luncheon addresses, and summaries of the nine discussion group sessions, follow this executive summary.

The conference agenda posed a wide range of national security, economic, and technological topics. However, despite this broadly-based approach, certain key themes repeatedly came up for discussion. In addition, while the conference participants represented a wide range of professional sectors and interest groups and thereby brought widely varying perspectives to the discussions, five key issues arose on which there was virtually unanimous agreement. First, it was universally held to be true that technology transfer to the Soviet Union and Eastern Bloc nations is a major national security problem. Second, current methods for analyzing the impact of technology transfer and for impeding its occurrence are inadequate and, in certain cases, inappropriate. Third, the Military Critical Technologies List (MCTL) needs, at best, to be restructured so as to address only what is truly critical and, at worst, to be totally abandoned in favor of a new process that more precisely defines what is critical and captures emerging technologies likely to be problematic in the future. Fourth, Third World countries will increasingly pose technology

technology transfer control problems. Last, and perhaps most important, regulation should be focused on feasible control, both content and process.

The conference opened with a welcoming speech by Dr. Arthur Gelb, President of The Analytic Sciences Corporation. Dr. Gelb focused on the need to confront technology transfer issues in a non-adversarial manner and expressed his hope that the conference would provide a productive forum in which diverse interest groups could work together toward identifying and resolving important economic and national security issues relative to technology transfer.

The conference keynote speech was delivered by Dr. Robert Gates, Deputy Director for Intelligence at the Central Intelligence Agency, the conference sponsor. In his speech, Dr. Gates presented some facts on technology transfer, offered some analytical judgments, and challenged the participants to focus their varying talents and backgrounds on key national security-related questions raised by technology transfer. Dr. Gates challenged the attendees to focus on ways to: 1) improve technology transfer analysis results offered to policymakers; 2) develop methodologies to better identify the technologies and equipment that will be needed by our adversaries; 3) better define "critical technologies"; 4) assess the impact of the new Soviet leadership on Moscow's policy of acquiring Western technologies; and 5) establish guidelines that might be used to better monitor U.S.-Soviet scientific cooperation.

The first Conference Session, International Trade and Business, opened with a keynote address by Mr. J. Fred Bucy, former president of Texas Instruments. The session consisted of the following three discussion groups: The U.S. Defense Industry, chaired by Mr. Robert Bovey of Coopers and Lybrand;

Global Economic Policy, chaired by Professor Marshall Goldman of Wellesley College; and Export Controls and the COCOM Process, chaired by Mr. Michael Marks of the State Department. Mr. Bucy's address identified a number of issues related to international trade and technological leadership, but his main thrust was the need to identify military and dual-use technologies that would make a revolutionary (as opposed to an evolutionary) improvement in the capabilities of the Soviet Union, and to focus controls on these revolutionary technologies. He also emphasized that the U.S. and its allies must take steps to thwart the Soviet ability to obtain, through gray-market deals and espionage, the technologies that they cannot obtain legally. Finally, Mr. Bucy made an important distinction between products, technology, and science, indicating that it is technology (the application of science to the design and manufacture of products and services) that needs to be controlled.

Mr. Bovey's discussion group on the U.S. Defense Industry addressed the corporate planning problems caused by U.S. export controls, the tendency of the U.S. to use East-West export controls as a foreign policy tool, and the need to develop and apply analytical tools for studying the economic impact of export controls. Professor Goldman's discussion group on Global Economic Policy espoused the view that a new process, a set of institutions, and a set of operational criteria are needed for identifying revolutionary technologies that should be controlled and for their deregulation when it is no longer necessary to control them. The discussion group agreed that technology transfer control must necessarily be a process of delaying, as opposed to preventing, technology transfer, and that controls clearly affect competitive position, perhaps even more for European firms than for U.S. firms. The group concluded that there is a clear need for better analytical tools and methodologies to assess the costs and benefits

of various export control measures. Mr. Marks' discussion group on Export Controls and the COCOM Process identified three key steps that must be taken to improve the COCOM process. First, the U.S. Government must achieve internal consensus prior to meeting with COCOM. Second, there must be a better understanding of Soviet acquisition priorities; third COCOM must enlist the assistance of Third World Countries attempting to develop their own high technology bases.

The second Conference Session, U.S.-Soviet Relations and Regional Security, opened with a keynote speech by Lt. Gen. Lincoln Faurer (USAF, Ret.), former Director of the National Security Agency. The session consisted of the following three discussion groups: Soviet Defense Policies and Capabilities, chaired by Professor Stephen Meyer of MIT, Arms Cooperation with NATO and Japan, chaired by Dr. Andrew Pierre of the Council on Foreign Relations, and China, chaired by Dr. Jonathan Pollack of Rand. Lt. General Faurer addressed the need for the U.S. to maintain its strength through technology and innovation, and identified the lack of a comprehensive analysis of Soviet technology acquisition requirements. He also stressed practicality in regulations and procedures, and more open dialogue both within the government and between the government and the private sector.

Professor Meyer's discussion group on Soviet Defense Policies and Capabilities put forth three basic conclusions. First, the Soviet need to acquire and assimilate Western technologies will continue for the foreseeable future; second, the Soviets will have to steal more and assimilate it more effectively to keep the technology gap between the USSR and the U.S. from growing. Third, the most important factor in evaluating the military significance of Soviet foreign technology acquisitions is the "transfer function" from the laboratory to

the production floor. Dr. Pierre's discussion group on Arms Cooperation with NATO and Japan discussed the need to bring together decision-makers to set priorities and make tradeoffs between the often competing goals of arms cooperation policies and technology transfer control policies. Concern was expressed that the Strategic Defense Initiative (SDI) would pose especially difficult technology transfer control problems. In particular, there was concern that Japan's tendency to liberally interpret re-export restrictions might create a "weak link" in the control process relative to SDI technologies. Dr. Pollack's discussion group on China focused on four key areas: the changes in China's economic policy that have influenced relations with the U.S.; the factors limiting China's ability to assimilate foreign technology; the risks and benefits of liberalized exports to China; and long-range policy alternatives that the U.S. might pursue with regard to China.

The third Conference Session, Science and Technology, opened with a keynote speech by Dr. Donald Kerr, former Technical Director of the Los Alamos National Laboratory. The session discussion groups on Critical and Emerging Technologies, Dual-Use Technology, and Scientific Communications and Exchange were chaired, respectively, by Dr. William Mulroney of Information Systems Laboratories, Dr. Charles Herzfeld of Aetna, Peterson, Jacob, and Ramo, and Dr. John Crecine of Carnegie-Mellon University. Dr. Kerr addressed the need for the U.S. to maintain a technological lead over potential adversaries and commercial rivals and outlined the four basic tasks facing the U.S. Government and industry: ensuring and encouraging the emergence of civilian technologies; promoting commercial applications of new technologies to improve the international competitive position of U.S. companies; accelerating the use of advanced technologies in deployed military systems; and delaying, where possible, Soviet access to those military and dual-use technologies crucial to deterring or fighting a war.

Dr. Mulroney's discussion group on Critical and Emerging Technologies addressed the need for a "watch list" to cover emerging technologies, restructuring the MCTL, the need for analytical techniques to assess the impact of technology transfer, and the formulation of a list of emerging technologies. Dr. Herzfeld's discussion group on Dual-Use Technology addressed the ambiguities of the dual-use problems, identified computers, aircraft technology, communications, and materials as those areas that will pose the most difficulties in the future, and voiced the perception that effective control must embody serious sanctions for non-compliance. Dr. Crecine's discussion group on Scientific Communications and Exchange addressed the need to find ways to perform classified research on university campuses; it was concluded that this was not only possible, but essential, as the U.S. cannot afford to exclude the potential contribution of the academic community to research conducted under classified guidelines.

In addition to the three keynote addresses directed at the major conference themes, luncheon speeches were delivered by Mr. Olin L. Wethington, a partner with the law firm of Steptoe and Johnson and a former Deputy Under Secretary for International Trade at the Department of Commerce, and by Minister Taizo Yokoyama, a Commercial Minister with the Japanese Embassy in Washington, D.C. Mr. Wethington's speech primarily addressed the need to reach a lasting political consensus as to the standards on which to base technology transfer control and the need to translate those standards into guidance that can be implemented at the working level. Minister Yokoyama addressed Japan's role in controlling the transfer of critical technologies to the Soviet Union and Eastern Bloc countries.

The technology transfer issues discussed and the views exchanged at this conference were both thought provoking

and enlightening. While practical near-term solutions to many of the issues raised are not readily apparent, this conference is a first step in formulating workable answers to some of these complex problems. An important outcome of the conference endorsed by most attendees was the sense of communication and cohesion created among the participants, and the establishment of a positive working environment in which questions could be honestly and rationally addressed. It was universally felt that the initiative established by this conference must be capitalized upon in the near future in order to maximize the usefulness of the conference. In particular, follow-up meetings focussed on specific themes and smaller specialized working groups should be planned and convened.

Discussions conducted subsequent to the conclusion of the last session addressed ways to further the work begun at the conference. Some of the specific activities being pursued or under consideration are:

- Hosting of a West Coast conference on Technology Transfer
- Hosting of a European conference on Technology Transfer
- Formation of small, technology-specific or country-specific working panels
- Development of technology transfer measures of effectiveness
- Convening a working group of technology specialists to pose alternatives to the MCTL.